DOCUMENT RESUME

ED 266 032 SE 046 417

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TITLE Racially Integrating College-Preparatory Math Classes--An Evaluation of a University-High School Partnership.
SPONS AGENCY Ford Foundation, New York, N.Y.; Fund for the Improvement of Postsecondary Education (ED), Washington, DC.
PUB DATE 86
GRANT G003201720
NOTE 29p.
PUB TYPE Reports - Evaluative/Feasibility (142)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Black Students; College School Cooperation; High Schools; Hispanic Americans; *Honors Curriculum; *Mathematics Achievement; Minority Groups; *Program Descriptions; *Secondary School Mathematics

ABSTRACT

Evaluated was a three-year pilot project, the Academic Scholars Achievement Program. Its goals were: (1) to revitalize the college-preparatory mathematics program of two California high schools, and (2) to increase the number of minority students completing that program. Establishing collegial relationships between the faculties of the schools and the University of California at Berkeley, mathematics honors programs, active involvement by parents, and close working relationships with a Hispanic community were the four tasks involved. Only one school was evaluated, since the other was closed. The emotional climate at the school prior to the program's beginning is sketched, and the mathematics department and its course offerings are described. Then how each task was implemented is described and evaluated. Finally, the academic records of black students are examined, with analysis of the program's effect on their performance in mathematics classes and their persistence in taking mathematics. The evaluation is based on individual and group interviews and classroom observations. Problems with the honors programs and the parent component are noted, and the university-community relationships are briefly reported. The record of black students is discussed, and it is concluded that although the program was not successful in helping students who began in the slow track to move to the college-preparatory track, it did encourage schools to pay attention to the academic success rate of their minority students, encouraged students to contrive taking math, and created better communication between minority parents and school personnel. (MNS)

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Racially Integrating College-Preparatory Math Classes--
An Evaluation of a University-High School Partnership

Final Report to FIPSE
Grant # G003201720
By Katharyn Culler

SE 046 417

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Introduction

This is an evaluation of a 3-year pilot project called the "Academic Scholars Achievement Program (ASAP)." The project had two goals. First, it aimed to revitalize the college-preparatory mathematics programs of two California high schools. Both schools had many subject-credentialed mathematics faculty who had been teaching for more than ten years. Second, it aimed to increase the number of minority students completing college-preparatory math programs in these schools. The project was a collaborative effort of the University of California, Berkeley's Professional Development Program (PDP)(1), Albany High School of Albany, Harry Ells High School of Richmond, and The National Hispanic University (NHU), a Bay Area community organization. The project was funded by grants from the Fund for the Improvement of Post-Secondary Education (FIPSE), U.S. Department of Education, and from the Ford Foundation.

The project directors proposed to accomplish the above goals by completing the following tasks:

1) creating a collegial relationship between the faculties of the high schools and the faculty of U.C. Berkeley based on the common problems of prepararing students for university study, and increasing the success of minority students in the classroom. The heart of this effort was a "university/ high school master teacher liaison program," in which high school teachers co-taught university level calculus workshops with instructors in PDP's Undergraduate Workshop Program;

2) designing and implementing a school-based 'mathematics honors program' for high school students, which would be racially integrated (modeled partially on PDP's Undergraduate Workshop Program.) Under the direction of participating high school teachers, this honors program was to build and sustain a cadre of high-achieving math students approximately 60% of whom would be minority (2) students, thus providing the school with a quality enrollment base for revitalizing its college-preparaory program;

3) mounting a community-based education program that would encourage parents to become more actively involved in school affairs and in monitoring their children's academic progress. This entailed providing parents with information about how school decisions were made as well as specific information about the role of certain courses in their children's overall education. In this latter area, the program was to stress the role that high school mathematics and science classes play in determining their children's career options;

4) developing a close working relationship between two disparate educational institutions: a Hispanic community organization and a public university.

This evaluation was conducted during the third project year, 1984-85. It includes only one of the two project sites: Albany High School. The other site, Harry Ellis High School, was closed in June of 1985. During

1984-85, unsuccessful rallies to gain school board members' support to keep the school open, job uncertainty and reprograming students into other high schools disturbed teaching at Ells. This and many other projects limped through that year, unattended by school staff who had more pressing concerns. The students are now scattered throughout the district. Tracing their performance, which requires using school records, would be a herculean task. Therefore, this evaluation is limited to examining the program implemented at Albany High School.

This evaluation starts by sketching the emotional climate of Albany High School prior to the program's beginning. Next it describes Albany's mathematics department and its course offerings. Then it describes how each of the four program tasks stated above was implemented and evaluates each component according to the participants' views and the evaluator's observations. The third section provides a different measure of ASAP's success. It examines the academic records of all black students at Albany and estimates the program's effect on these students' performance in math classes and their persistence in taking math.

This evaluation is based on individual and group interviews and classroom observation. The evaluator conducted individual interviews with the two math teachers who co-taught in PDP's undergraduate workshops and Albany's principal and vice-principal in charge of programs for minority students. She spoke informally with each member of the math department about the program. She also conducted (and video-taped) group interviews with all 20 students in after-school workshops during 1984-85 and lead group discussions with their parents with the assistance of a family therapist consultant: Dr. Mindy Fullilove. In addition, she attended several sessions conducted by Dr. Fullilove with the family of a child in the Workshop, who was doing poorly in school and, according to Dr Fullilove, was clinically depressed. This therapudic intervention led to a

change in the young woman's school performance and contributed some valuable insights about the Program's stregnths and weaknesses. (3)

Section One--Background

Albany High School was the only public high school in the city of Albany, California--a predominantly middle-class suburb near UCB. In 1985, Albany had 800 students. Of these, 20%were Asian, 16%were black, 5% were Hispanic, 54% were white and 5% were classified as 'other'. Albany, like many small, suburban high schools, has had a growing minority student population; in the decade since 1974, the percentage of minority students has increased by about one-third.

Albany's math department was well-known in the Albany School District and among Bay Area high school teachers for holding high standards for its students' performance. Department members cooperated on several projects to maintain these standards. Most important, they coordinated their instruction. For example, the two Algebra 1 teachers had different teaching philosophies; one believed in 'spiralling' through the material, the other did not. They kept their classes coordinated by agreeing to cover the same topics at several points during the semester. Thus, they proceeded through the material in a different order and yet kept their classes in sink. The same final was given in both classes.

The Department also had a cooperative method of revising curriculum. Teachers teaching a particular course would agree to create dittos of supplementary problems on alternate weeks. Each teacher would present the ditto to his class, watch how students worked the problems, and then suggest changes for improving the ditto. Thus, the department was constantly updating its curriculum and testing it. Using a similar method, the department created extra credit problems (called Friday Sheets). These problems were assigned department-wide; they were not linked to

the material in any of the courses. The extra credit problems were for developing students' mathematical intuition.

The Department also created after-school activities to encourage its students to enjoy math. In 1978, it started a mathematics team-competition--called Mathleets. In 1985, Mathleets had 13 participating schools, including schools from as far away as San Jose (30 miles.) The Department also annually brought a team on a weekend camping trip to the State-wide mathematics competition.

In the ten years between 1974 and 1984, Albany High School saw an increase in the number of math classes offered that were not college-preparatory. For example, in 1974, Albany offered 6 college-preparatory algebra classes and 2 general math classes. In 1982, the numbers had almost reversed: 2 college-prep algebra and 7 general math.

In 1980, the Department created an introductory algebra course that was slower in pace but identical in content to its original beginning algebra course: called Algebra A,B. Algebra A,B covered the Algebra I material in four semesters instead of two. Theoretically, 'late blooming' students--students who were capable of college-level work but unable to succeed in Algebra in the 9th grade--would be able to rejoin the college-track sequence by taking Geometry in their eleventh-grade year. In practice, however, most students in the slower sequence algebra continued in the slower sequence by taking Applied Geometry: geometry without proofs(4). (It is important to note that a university-bound student in this slow sequence could not repeat a course and still be eligible for the University of California. While a student who took Algebra A in the ninth grade, Algebra B in the tenth grade, Geometry in the eleventh grade and Intermediate Algebra in the twelveth grade would fulfill the University's minimum mathematics requirement, he or she would not have the

University's recommended mathematics preparation, which included taking Pre-calculus. Further, such a student would lack the math preparation of the average entrant. Over half of the University of California, Berkeley entering freshman have taken both Pre-Calculus and Calculus.)

In Spring 1981, Albany's principal surveyed the school's math classes. He found a disturbing racial imbalance among the students in college- and non-college-track classes. There were, for example, 12 black students in college-track math classes and 26 black students in non-college track math classes. To address this imbalance, he established a committee on Race Relations, composed of parents, teachers and school administrators. Unfortunately, Committee meetings were frequently the occasions of embittered exchanges between parents and administrators and produced no workable ideas for correcting the racial imbalance.

Lacking workable solutions, and watching the unrest among minority parents increasing, Albany's vice-principal, upon hearing of PDP-NHU's project design, offered Albany as a test site. (In 1983, the meetings of the Race Relations Committee became so unfriendly, that the principal disbanded it.) Both Albany administrators and parents supported beginning a pilot program with PDP and NHU. Many agreed with one parent that the program--titled the Albany Scholars Achievment Program (ASAP)--was their best hope for ending the two-tiered educational system evolving at Albany.

Section Two--Description and Evaluation By Component

University-Master Teacher Liason Component-Description

The master-teacher(MT) came to the University two days a week to co-teach a two-hour workshop, in addition to teaching a full load at the high school. Following each workshop, the MT participated in a discussion of workshop curriculum and group-instruction methods. These meetings included discussions of the following week's worksheet topics and that day's workshop. Conversation about the preceeding workshop sometimes focused on a specific worksheet problem, but more often turned to the dynamics of a particular learning group or the learning styles and problem-solving methods of particular students. After these discussions, the PDP co-leader wrote the next worksheet. If sufficient time remained, he would give a copy to the MT for review and refinement. In addition to the five hours each week spent meeting and teaching, MT's spent another five hours a week relearning calculus using Calculus by Marsden and Weinstein. The MT's were paid a stipend of $1,000 per semester for their time.

Evaluation--master teachers' views

Both of the MT's said co-teaching the calculus workshop was very useful to them. In virtually the same breath, they also said it was a great deal of work. Neither, however, was dissuaded by the workload from extending their semester of co-teaching into a year and thus finishing the calculus sequence.

The MT's, though interviewed separately, agreed about what they gained from co-teaching. First, relearning calculus was enjoyable for and useful to them. Neither had worked with calculus for over ten years. They

enjoyed the challenge of re-learning this course. Moreover, one of these two MT's parlayed his co-teaching experience into a change in his professional responsibilities. Prior to his work in this program, he had taught only Geometry. Following his co-teaching he requested and taught Pre-Calculus, the highest math class taught at Albany.

Second, both of these teachers felt that bridging the gap between university and high school educators enriched their own work. These teachers were enthusiastic about their profession, yet, many years of teaching in one school had stagnated their approach to their classes.

Moreover, they had felt isolated from the University. Co-teaching put them in contact with individuals who were experimenting with a new approach to teaching math and, most importantly, gave them an opportunity to give this approach a reasonable trial. Neither adopted this approach as a primary method of instruction, as discussed below, but, both gained from thinking about and experimenting with their own teaching styles. Because of their professional liason with the university, both felt less isolated in their work.

Third, both teachers agreed that seeing in detail what the University required students to know changed some of their previous decisions about what to include in their high school courses.

Last, they were intrigued by PDP's use of learning groups(4) in workshops. They both felt (and PDP staff concurred) that such teaching methods were too time consuming to be the sole method of presenting new material. Yet, they also agreed that these methods had some unanticipated advantages. In particular, the MT's felt that these methods contributed to increasing the students' enjoyment in learning math. The MT's liked the colleagial relationship these methods allowed while teaching. One of the teachers experimented with PDP group-teaching methods in his classroom during the time he was co-teaching. He adapted these methods for use

with certain types of classroom assignments. Both felt these techniques were useful for supplementary instruction.

On the negative side, as mentioned above, both found co-teaching to be taxing--mostly because relearning calculus required so much time. One of the two teachers wished that the worksheets had been available sooner and, in general, that the co-teaching arrangement had been better organized.

Evaluation -- PDP workshop leader's view

Four PDP workshop leaders participated in this co-teaching arrangement. However, both Albany MT's co-taught with the same PDP instructor. His views follow.

The PDP instructor reported learning "more about teaching." Observing other teachers in his workshop he "picked up some new tricks," and spent time thinking about his own teaching style. He also became better aquainted with the high school curriculum and could therefore judge better which topics he would need to stress in Workshop. In sum, he stated that "having a professional colleague watching you forces you to be 'on' all the time. It makes leading workshop harder, but also better. It's exciting to find someone else interested in discussing the fine points of teaching math."

On the negative side, having a co-teacher required more preparation by the university leader and he found it taxing to be under constant scrutiny. Yet, these discomforts, in his opinion, were out-weighed by the advantages of working closely with professional colleagues on "the other side of the fence."

This component was by far the most successful component of the project. Both school and university participants left this collaborative arrangement more excited about teaching and feeling less isolated in the

classroom. Several times while this evaluator was visiting the school, teachers and administrators took time to remark that co-teaching had a perceptible effect on their colleague's disposition; the MT's were observably more excited about their work in the high school.

This program became known among the teaching community by word of mouth. This summer ('85), with no money to pay teachers for their time (the grant ended in October '85), PDP had requests from four math teachers (from three districts) and one TA from the math department to co-teach in the workshops. The Fund for The Improvement Of Post Secondary Education provided PDP with a generous supplement ($10,000) to the last year of funding to begin this project in a third school. These monies have underwritten the cost of one of the four teachers; PDP has provided a small stipend to a second one and an entree for him to take the second course in the calculus sequence. The math TA is co-teaching without financial support of any kind. At the end of 1985, PDP and NHU were seeking support that would enable the Program to continue the co-teaching component of this pilot.

A School-Based Mathematics Honors Program: ASAP

ASAP was run somewhat differently, in each of the three years of the pilot project. The third year is described below. This description begins with recruitment for the program and follows with a typical after-school workshop. Important departures from earlier models will be discussed in the Notes.

Recruitment--description

In the second or third month of the school year, math teachers were asked to compile lists of students they recommended for ASAP. Interested students from these lists were interviewed in groups of four or five. Each student was asked to describe something he or she had done well; and how

he or she would contribute to a math study-group. The interviews essentially asked students to describe themselves as honors students. Students who expressed confidence, were seeking to continue their education beyond high school, and believed they would work well with others were selected. Students who were very confused and believed that they needed help but had nothing to offer a group were rarely selected.

Once a group of participants was selected, the parent or guardian of each student received a congratulatory letter asking them to attend a meeting about ASAP. At this meeting, ASAP personnel congratulated parents on their child's success and introduced them to school personnel who could advocate in their child's interest. ASAP personnel stressed that this program was not recruiting for UCB, but, nevertheless, aimed to prepare all participants to meet University entrance requirements. This preperation would keep options for post secondary study open to them. Moreover, ASAP personnel explained that the program demanded four and one-half additional hours a week--essentially an extra, non-credit class--of the student's time. They asked parents to help the student keep this large time commitment.

Recruitment--evaluation

Invitations to join ASAP were extended to a lively group of college-bound students, approximately 18 students per workshop. The selection scheme, however, had two obvious problems. First, the number of participants dropped by half in each workshop within the first week. Some students never came to the workshop, others found the time commitment too difficult, and a few disliked the format--they sought more individual attention. Each remaining small group (6-9 students) did meet religiously throughout the school year (except in the case of one workshop whose leader attended her workshop inconsistently in the first weeks of the program. ASAP staff intervened in this case. The workshop

was revived, but, the attendence was never as large or consistent as in the others.)

A second problem arose because, counselors and teachers in other departments did not participate in choosing students for the program. The counselors had to defend the selections to students who were not interviewed or not selected. They resented this because they had no power over the selections.

ASAP--description of a workshop

The workshop met in a math department room under the leadership of a UCB undergraduate, many of whom were graduates of PDP's Undergraduate Workshop Program. The workshop convened three days a week after school for one and one-half hours. Each session, the workshop leader presented a worksheet which she or he had prepared. There were four types of worksheet problems, those similar to difficult homework problems, those presenting central ideas in a different form, those exposing the students to tricks or short cuts they would not be taught in the classroom, and those presenting material that was to be covered in the coming week.

A workshop's goal was for each person to understand each problem that he or she attempted rather than completing each worksheet. For this purpose, students were encouraged to work on problems together. Most often, they would complete a problem on their own and then check their solution and/or method of solving the problem with that of others. Competition within the group was discouraged; rather, workshop leaders tried to maintain a relaxed atmosphere in which students were encouraged to enjoy themselves and to be self-directed.

ASAP--evaluation

ASAP students, when interviewed, were enthusiastic about their workshop. They enjoyed workshop and most felt that their math grades had improved because they had participated in the program. Many ASAP students became attached to their workshop leader; he or she was their avitar with the math teachers and the subject matter. Students called their workshop leader at home; sometimes they sought advice on homework and, at other times, personal counseling. (One parent jokingly commented that PDP should hire only workshop leaders who lived within the toll-free area.)

ASAP students greatly enjoyed assuming a teaching role with respect to their peers. In addition, they enjoyed studying math much more. However, their enjoyment of the subject matter did not change appreciably. If they liked math before joining ASAP, they continued to like it. Similarly if they did not like math before joining ASAP, they continued to dislike it.

The informal atmosphere of the workshop was very important to the students. Holding the workshops in the mathematics department rooms contributed to the success of the workshop. Students appeared to take over the math room, and had permission to hold informal meetings there. This gave them a sense of ownership of a part of the school. A few ASAP students were involved in extra-curricular activities such as after-school sports or Year Book before they joined ASAP. But, for the majority of the students, belonging to ASAP was their first extra-curricular tie to the school. By the time ASAP students were juniors, many were active participants in the school. One junior was secretary of the student government, another was selected "student of the month," and four participated in mathleetes.

ASAP students studied differently after participating in the

Program. In addition to studying in groups in the workshop, they would study together outside of the workshop meetings--often by calling each other on the phone. Many began using other school resources to assist them in their classes, such as attending the tutoring center. A most important change reported by almost half the participants was that they began reviewing material prior to a test.

ASAP had several difficulties. First, it had difficulty with scheduling the workshops. This problem appeared to lack a perfect solution. If a workshop was held after school, students were forced to choose between ASAP and other extra-curricular activities such as after-school sports, school plays and band. If it was held before school, it conflicted with Driver's Education (4). If a workshop was scheduled into a regular class-time, students were forced to give up a class for which they would have gotten credit(5).

In the third year of the program, the workshops were held after school. The teacher coordinating the program had arranged with two coaches (track and wrestling) and the play's director for workshop students in these activities to be released from workshop one-half hour early and to arrive at practice one-half hour late. Workshop students whose coaches would not compromise on practice time, either dropped workshop for the season or dropped after-school sports. Since many minority students participate in after-school sports, a coach's decision not to let students out of some practice time had a large effect on ASAP. Perhaps, if the school finds that ASAP is a valuable program, administrators should consider a school policy allowing ASAP students to attend practice one-half hour late.

A second problem was the lack of supervision for workshop leaders during workshop. At the begining of the year, the PDP coordinator claimed that she would leave all supervision of the workshop leaders to the

teachers. However, she continued to be involved throughout the year, this created confusion because there were two lines of authority. The PDP coordinator had hired and trained the workshop leaders. The school personnel knew that she had remained in a semi-supervisory role with the workshop leaders and therefore counted on her to provide whatever supervision they did not get to. As a result, some supervision was never provided. The PDP coordinator should have confined her work to those area's for which she had taken resposibility. Additionally, the workshops were held after school and the teacher who was given supervisory responsibilities was department chair and the mother of two small children. She had many district commitments after school, in addition to her family commitments. After-school supervision needed to be reassigned to someone who was in the School but had free time after school.

A third problem was uneven quality in the workshops. The undergraduates were inexperienced teachers. Periodically, they lost control of the group, sometimes their worksheets were too repetitive, or otherwise unenlightening. There were times when the material covered in workshop moved ahead of the material being covered in class. On several of these occasions, the workshop participants questioned the workshop's utility. Workshop leaders were very sensitive to participants' complaints, when criticized for being ahead of the class, they would match the material more closely to the class, in spite of the fact that the workshops were intended to preview class material.

The Parent Component

Description

The Parent component consisted of two large group meetings, one at the beginning and one at the end of the project year, weekly telephone conversations between parents and workshop leaders and, if a workshop student was in academic trouble, family meetings with a consulting family counselor. The goals of the large group metings were 1) to open congratulatory conversations between parents and school officials, and 2) to inform parents of college and university entrance requirements in sufficient detail to allow them to guide their children's choices of high school courses. The goals of the weekly telephone conversations were 1) to keep parents abreast of how their children were doing in math class, 2) to provide an early warning system for any event that might affect the workshop student's school performance, and 3) to keep the parents informed about student's attendence in workshop.

Evaluation

The parent component was loosely structured, and both events and telephone calls were kept short. This was useful; it allowed parents to participate without demanding much of their time.

The meetings and calls engendered good will from the minority parents toward the school. Minority parents had tangible evidence, in the form of an honors program, that the School cared about their children's academic performance. More importantly, parents were impressed that the School held high expectations for what their children could achieve. In addition, they served to identify concerned school and program personnel who could help parents advocate for their child's best interest.

The donated services of a family therapist, Dr. Mindy Fullilove, were a significant addition to this component. Dr. Fullilove specializes in

working with black families with exceptional school-age children and families whose children are having difficulties in school. She provided the Program with the means to address problems unrelated to school that were expressed through poor school performance.

On the negative side, workshop leaders were inconsistent about keeping in contact with the parents. The workshop leader who kept a weekly regiem of calling parents was motivated to call because her workshop attendence was poor. (She had attended her workshop erratically in the first weeks.) Workshop leaders found speaking with parents difficult. They had only recently become emancipated adults and were unsure of their relationships to adults.

University-Community Organization Cooperation

The project coordinators from these two disparate organizations were able to build a smooth working relationship. This was, however, the full extent of the cooperation between these two organizations. To forge a true link between these two organizations, more than a joint project would be required.

Section Three-- Albany's Black Students Math Performance

In interviews, participants reported that they enjoyed ASAP and believed it had helped them earn higher grades in their math classes. This section examines the academic records of a subgroup of ASAP students for substantiation of this assertion. In particular, the records of Albany's black students between the years of 1980 and 1985 were collected (8). The performance of these students was analyzed in two key math courses, Algebra I and Algebra IA. In addition, the subsequent math courses of successful black students in these courses were charted. This examiniation shows that black students in ASAP pass these courses at a higher rate than black students not in the program and that most successful ASAP black students progress through the high school math sequence (e.g. first an intorductory algebra course, then a geometry course, than an advanced algebra course) in a regualar fashion.

As noted above, this analysis uses the records of all black students who attended Albany between the years of 1980 and 1985, the graduating classes of 1983 through 1987. The records are divided into three groups, those who finished their sophomore year before ASAP began at Albany (i.e. the graduating classes of 1983 and1984), those in the graduating classes of 1983-1987 who participated in ASAP and those in '85-'87 graduating classes who did not. The first group is labled 'Pre-Program', the second 'ASAP' and the third 'non-ASAP'.

Performance--introductory algebra

Introductory algebra is a critical course in the career of college- and university-bound students. In California, both these post-secondary institutions require the first three courses in the high school mathematics curriculum: introductory algebra, geometry and advanced algebra. Since mathematics curricula are organized in a roughly hierachical fashion, a student must pass intorductory Algebra to be eligible for admissions to a California State college or university.

The chart below shows the failure rates of black Albany High School freshman and sophomores in their introductory algebra course, either Algebra 1 or Algebra 1A. (If a student repeated the course, only his best grade was counted.)

Proportion of Black Freshmen and Sophomores Failing*
Introductory Algebra Courses

Course	Pre-Program '83-'84	ASAP '84-'87	Non-ASAP '84-'87
1st Sem.			
Algebra 1A	**	24% (4/17)	57% (21/31)
Algebra 1	47% (7/15)	25% (3/12)	64% (7/11)
2nd Sem.			
Algebra 1A	**	32% (6/19)	59% (19/32)
Algebra 1	58% (7/12)	20% (2/10)	43% (3/7)

*A student is considered to have failed if he earned a grade of D or less in his best attempt at passing the course.

** The number of enrollees was small in these years

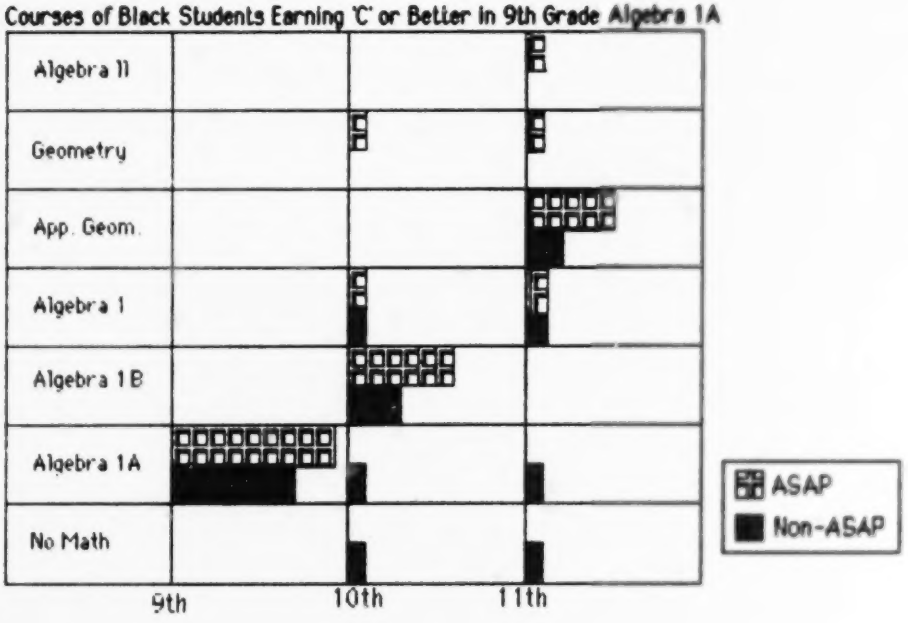
Students in ASAP failed their first algebra course at roughly one-half the rate of their peers not in the program. A comparison between the failure rates of the Non-ASAP students and the Pre-Program students in first semester Algebra 1, indicates that selection is a factor in the low failure

rate of the first semester ASAP students. One would expect selection to be a significant factor in the first semester of such a program. But, the success of the program is obvious in the second semester rates.

If one ignores program affiliation and combines the ASAP and Non-ASAP groups, 5 of 17 students failed the second semester of Algebra between '84 and '87. This is a failure rate of 29%--exactly one half of the failure rate of the Pre-Program students (58%)! Program selection is not obvious in the second semester because selective pressures have divided the Non-ASAP and Pre-Program groups in the second semester. With failure rates of more than 50%, the majority of the underprepared and/or less serious students did not continue in the sequence. In essence,therefore, selection occured in both the Pre-Program and the Non-ASAP groups. The failure rate of all black students in graduating class '84-'87 is half that of the Pre-Program students because, during these years, ASAP participants successfully finished the course in higher numbers than the Non-ASAP participants. Two thirds of the successful second semester students were in ASAP.

Persistence--math courses of successful 9th grade algebara students

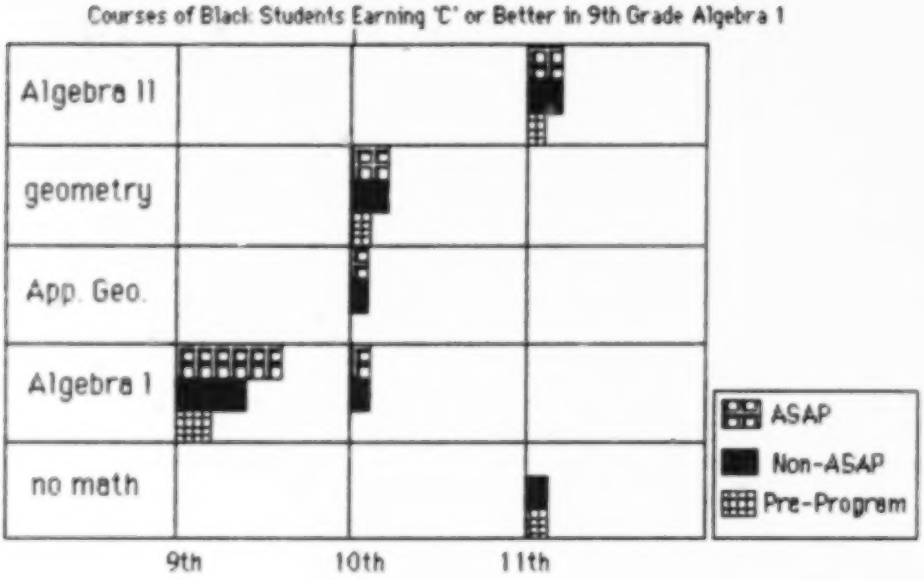
Chart 2 below, shows which math courses were taken by ninth graders who successfully completed the second semester of Algebra A. The course titles on the left are organized to approximate the hierarchy of the courses at Albany. (In the appendix a more acurate diagram of the Albany courses is drawn.)



ASAP algebra 1A students were the only 1A students found in the highest track math classes. The majority of the ASAP students were following the 'slow' sequence: Algebra A, Algebra B, Applied geometry. They took math courses in the 'slow' track in record numbers compared to the students not in the program.

Chart three below shows the courses taken by black ninth graders who passed algebra 1. ASAP and Non-ASAP participants who were successful in Algebra 1, have nearly identical math course taking patterns. This chart shows that black students who succeed in Algebra 1 are encouraged to continue in the college-prep sequence. It was outside the scope of this

evaluation to pinpoint the source of this guidance. Perhaps the traditional guidance procedures in the school were more helpful to these students; perhaps black students who get placed in the algebra 1 track are highly motivated to go on to college and are receiving guidance from outside the school e.g. from parents or other programs serving college-bound minority students.



Together, these charts show that ASAP students continued to take math and progress through the regular sequence of high school math courses. Which track they take courses in has not been altered by the program. If a student was successful in Algebra 1A, he or she would be most likely to continue in this slow sequence and if the student was succesful in Algebra 1, he or she continued in the college-prep sequence.

Conclusions

This program accomplished most of its aims. Through the Master Teacher/University Liason, high school faculty were able to see first hand the level of math that the University now required entering freshmen to know. Relearning calculus was stimulating for both participants and was parlayed into professional advancement for one of these teachers.

The School-Based Honors Program: ASAP helped its participants enjoy studying math. In additon, it reduced the failure rate of one subgroup of its participants, black students, in introductory algebra courses by one-half. This evaluator believes that a similar success rate would be found for other ASAP sub-groups. Moreover, ASAP increased the numbers of black students beginning in Algebra 1A who then progressed through the regular sequence of high school math courses.

The program was not successful in helping students who began in Algebra 1A join the best college-preparation math track. If the program continues, the findings suggest that the program design should be altered. The current design does not allow the program to affect the numbers of students enrolling in ninth grade Algebra 1. If the program aims to increase the math preparation of minority students entering colleges and universities, it needs to increase the numbers of minority students in the best college-preparation math tracks. Since this program failed to help students move into the college-prep track from the slow track, the evaluator suggests redesigning the program to influence the placement of students in their ninth grade introductory algebra class.

The parent component was successful in bringing minority parents the message that Albany held high expectations for what their children could achieve in academically. Many parents felt more positively toward Albany High School because of ASAP.

The program encouraged and in some cases forced Albany administrators, counselors and teachers to pay attention to the academic success rate of their minority students. It successfully encouraged students to continue taking math. It helped create better communication between minority parents and school personnel. It was not successful in significantly increasing the numbers of minority students moving from Albany's slower math sequence into its best college-preparatory math sequence. But, it mobilized the necessary school personnel to address this problem and to work towards racially integrating the highest math classes at Albany.

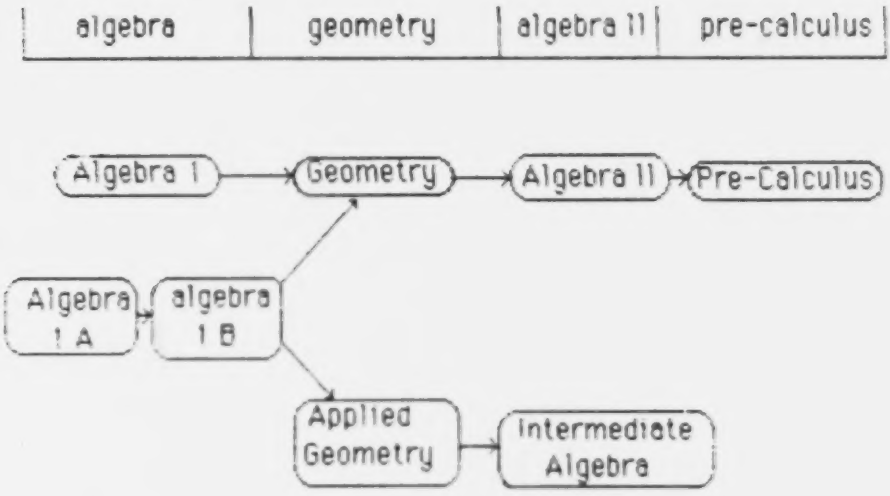
Notes

(1)The Professional Development Program is a faculty-sponsored student affirmative action program. Minority students pursuing mathematics and scientific majors comprise most of the Program's participants. Undergraduates in PDP's Undergraduate Workshop Program meet daily under the direction of a Math or Science Education Specialist; these meetings are called workshops. PDP undergraduates have compiled an unusal record of success. They perform, on average, almost 1.3 grade points higher than the class average in both calculus and chemestry classes (b+ level work,) and, to date, have a graduation rate of 80% as compared with the campus average of 60%. (For a full description of the Undergraduate Workshop Program see Appendix.)

(2) Minority refers to black and Hispanic students. These groups of students are severely underrepresented in math-based fields of study.

(3) Fullilove,Robert, Fullilove,Mindy; and Culler,Kalyn (in press.) Black School Achievement: A Psychiatric Perspective. American Jounal Of Social Psychiatry

(4) Albany High School Mathematics Classes:



(5) In the first year, the program was advertised widely. While this method allowed all interested students to interview, it also increased the number of students who were rejected.

(6)The year ASAP tried this, the attendance was less regular.

(7)ASAP tried scheduling two of its workshops during the school day in its second year of operation. The surrounding classroom's teachers complained that workshops, which are noisier than regualar classes, disturbed their classes. In addition, the workshops, both leaders felt, lost some of their special quality of belonging to its participants while being in the school. Both attendance and discipline problems were more severe.

8) Though Albany High School does collect some data on the racial makeup of its student body, these data are gathered anonymously and used only in aggregate form. Thus, the pattern of black student math-performance for

the graduating classes of 1983-1987 was created by looking through year-books, constructing a list of black students pictured there and checking this list's completeness with school personnel.